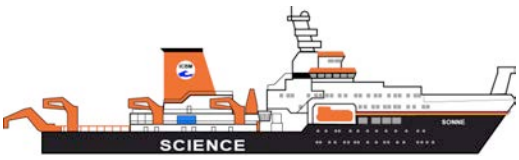
# SO-255

# Vitiaz

## 1. Weekly Report

## (01.03. – 05.03.2017)




**R/V SONNE**

34°14´ S / 178°27´ E

On the R/V SONNE cruise SO255 (Vitiaz Project), we are investigating the Vitiaz-Kermadec subduction system, which extends from the Taupo Volcanic Zone on North Island of New Zealand for ~1300 km to the Tonga subduction system (see figure on next page). Here the Pacific Plate subducts (sinks beneath) the Australian plate, which among other things leads to strong earthquakes and frequent volcanic eruptions. The present-day Kermadec-Tonga Arc systems and Colville-Lau Ridges formed by splitting of the older Vitiaz Arc. Thereafter rifting and seafloor spreading formed the Havre Trough and Lau Backarc basins. In collaboration with scientists from New Zealand, the U.S.A., Japan, Switzerland and England, the SO255 cruise will conduct extensive bathymetric mapping, sub-bottom, magnetic and gravity profiling, and hard-rock sampling (via dredging) to investigate the physical and chemical conditions that control the development of subduction zones, including subduction initiation and evolution, and the transition from arc splitting to backarc basin generation. Smaller biological studies will complement the geological program.

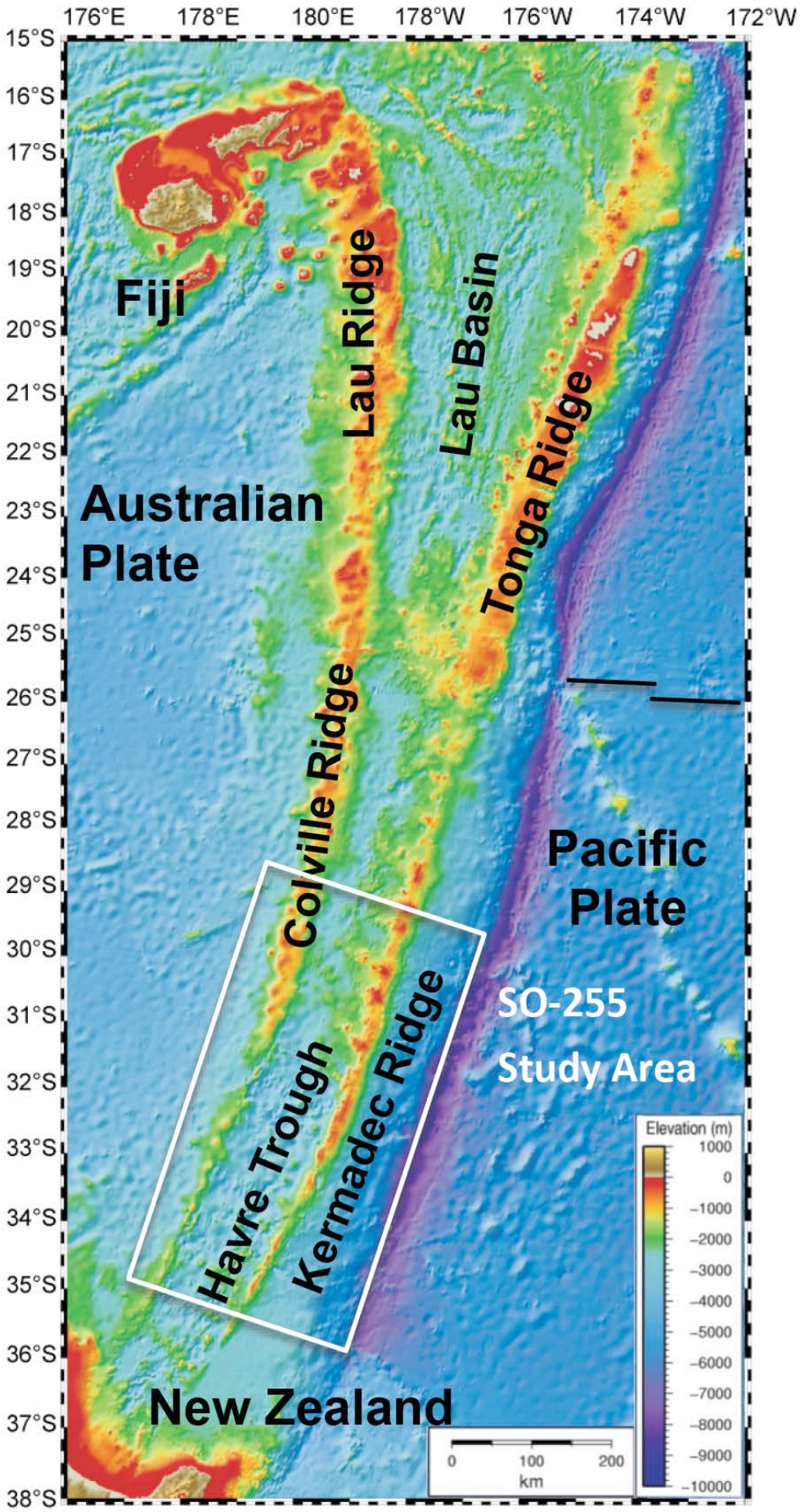
On March 1, most of the scientists boarded the ship and began unpacking the equipment and setting up the laboratories in preparation for the cruise. After the boarding of some additional technical personal and a member of the funding agency, we set sail on the afternoon of March 2 from Auckland. The weather was gorgeous as were the views of downtown Auckland and the surrounding bay. The bay was so filled with sailing vessels that the captain often had to blow the ship's horn to make a path through them. After a day of carrying out successful tests on the ship's sonar system, the Sonne returned to Auckland to let off the technical personnel. We also took a last scientist on board who had to postpone her trip due to illness. Saturday afternoon the Sonne again left the Auckland harbor to officially begin the SO255 cruise. Around mid-day on Sunday, we arrived at our first workstation and began our scientific program with three successful dredges on and near the Colville Ridge.

All on board are doing well and send their greetings.

Kaj Hoernle and the SO255 scientific crew

Downtown Auckland from the Sonne (Kaj Hoernle)

Goodbye Auckland (Kaj Hoernle)




Bathymetric map from the Tonga-Kermadec Arc (Christian Timm)